



Densely deployed wireless networks provide one of the most important and sustainable solutions to improve the area spectral efficiency, and to handle the spectrum crunch expected by 2020. They are expected to have a huge economic impact, contributing to 5G small-cell technology, wireless sensor networks (WSN), machine-to-machine (M2M) communications, vehicular-to-vehicular (V2V) communications, and to public safety networks (PSN). However there are many serious technical issues identified in the implementation of these networks:

- Dense wireless networks are inherently interference limited environments, and for conventional network approaches the overall system throughput does not increase linearly with the size of the network. This effect has also been observed for the energy efficiency of conventional dense wireless networks.
- In some dense wireless networks such as M2M, V2V, and PSN, it is not always feasible to have accurate network planning and/or accurate link budget allocation due to their high demand to signalling overhead. In such cases reliable communications over unplanned dense networks becomes a significant technical issue to investigate.
- Increased density provides increased opportunities for user cooperation and networking. Advanced concept of opportunistic networking in heterogeneous networks becomes an interesting issue. On the other hand, security is an increasingly important issue in this new context.

One of potential solutions to these problems is low-complexity opportunistic node cooperation, which reduce the load of devices meanwhile utilising the advantages of route diversity in densely populated wireless networks. Moreover distributed self-organization algorithms have been intensively investigated to support robust and flexible distributed network optimisation. These concepts open a broad spectrum of research directions, standardisation paths and market opportunities, which will involve the relevant communities in both academia and industry arenas in the next decade.

Scope and Objectives:

This workshop aims to gather researchers, regulators and users to present and debate advanced PHY and MAC techniques for coordinated or uncoordinated densely deployed wireless networks and applications, with the perspective of future cellular, M2M and V2V standardisation. Specifically, but not exclusively, the workshop addresses the following issues:

- | | |
|------------------------------------------------------|-----------------------------------------|
| • Cooperative signal Processing for HetNets | • Uncoordinated multiple-access |
| • Millimeter waveform design for OPNTs | • Non-orthogonal waveforms |
| • Information theoretic limits | • Distributed self-organizing methods |
| • Advanced modulation and coding schemes | • Routine and re-transmission protocols |
| • Cooperative communications in large-scale networks | • V2V communication protocols |
| • Physical layer network coding | • Security, trust and privacy issues |

Important Dates:

Paper Submission:	18 November 2016
Notification Date:	17 February 2017
Final Paper:	10 March 2017
Workshop:	21st May 2017

Organizing Committee:

General Chair

Yi Ma	University of Surrey	UK
Program Chairs		
Damien Castelain	Mitsubishi Electric R&D	France
Na Yi	University of Surrey	UK